

REMARKS

Status of the Claims

Claims 1-12 are pending in this application. No claims have been canceled or added. Claim 1 has been amended to recite that a compound as described in item (iv) must be present in photothermographic material of the present invention. Support for this amendment is found in the original claim 1 where at least one of compounds of times (i) to (iv) were present in the photothermographic material. As such, Applicants submit that no new matter has been added by the above claim amendments.

Rejection under 35 USC 103(a)

The Examiner rejects claims 1-8 and 10-12 as obvious over Ito et al. USP 6,150,084 (Ito '084) or JP 11149136 (JP '136) in view of JP 11-194447 (JP '447), Eshelman et al. USP 5,858,637 (Eshelman '637), Lok et al. USP 5,945,270 (Lok '270) and Lok et al. USP 5,912,112 (Lok '112). Applicants traverse the rejection and respectfully request the withdrawal thereof.

The present invention is directed to a photothermographic material that contains photosensitive silver halide, organic acid silver salt, a reducing agent and a binder on one side of a support and a compound that satisfies item (iv) and at least one compound that satisfies one of items (i)-(iii). An embodiment of the present invention is particularly characterized by using the

organic gold compounds in combination with a compound of formula 1, 2 or 3 from item (iv) and at least one of item (i) to (iii). The present invention is able to achieve superior properties, such as higher sensitivity, lower fog, higher Dmax, improved storage stability and low temperature and humidity dependency during development.

The primary references Ito '084 and JP '136 both disclose similar photothermographic materials. However, Ito '084 use a hydrazine compound, whereas the present invention disclaims using a hydrazine derivative. JP '136 discloses a heat developable recording material that contains photosensitive silver halide, a compound of formula 1 as defined in the abstract of JP '136, organic silver salt and a reducing agent. JP '136 fails to disclose using the organic gold compounds in combination with a compound of formula 1, 2 or 3 from item (iv) and at least one compound from items (i) to (iii).

Applicants submit that the secondary references fail to disclose or suggest the deficiencies in the primary references. As such, no prima facie case of obviousness has been established as all the limitations of the claimed invention are neither disclosed nor suggested. As such, the rejection should be withdrawn.

Assuming arguendo, that a prima facie case of obviousness has been established, Applicants submit that the present invention has

unexpected superior results over any photothermographic material derived from the combination of references.

The present invention has excellent properties, such as higher sensitivity, lower fog, higher Dmax, improved storage stability and low temperature and humidity dependency during development, which are not achieved by the combination of references because the references do not use organic gold compounds in combination with a compound of formula 1, 2 or 3 from item (iv) and at least one compound of items (i) to (iii) as in the present invention.

Please see Table 17 of page 137 of the specification and of the attached unexecuted Declaration of inventor Tokuju OIKAWA, which is submitted herewith under 37 C.F.R. 1.132. (An executed copy of the Declaration will be submitted upon receipt from the inventor.) The data in Table 17 indicates that samples 1-4, 1-7, 1-8 and 1-9, which are embodiments of the present invention, where organic gold compounds are used in combination with a compound of formula 1, 2 or 3 from item (iv) and at least one of item (i) to (iii) have far superior qualities than samples 1-1, 1-2 and 1-3, which contain no organic gold compound and samples 1-5 and 1-6, which contain no compound satisfying item (iv). Compound Y used in sample 1-5 is the same compound as nucleating agent 54a used in Ito '084. Please see page 126 of the present specification and Tables 9 and 23 in Ito '084. Table 20 in the present specification also

demonstrates the superiority of the present invention over the prior art.

In addition, please also note that sample 1-10 in Table 17 of the Declaration and of page 137 contains photosensitive silver halide, where the mean grain size is 0.11 microns. This sample is also inferior to the present invention as shown in Table 17.

In addition, in the experiments of the Declaration Mr. Oikawa conducted comparative testing to show how the present invention has superior properties over the closest prior art. Samples 1-11 and 1-11' contain an organic gold compound, but do not contain the compound satisfying item (iv) as claimed. Also, the samples contain a typical hydrazine compound as a nucleating agent H as shown in JP 11194447. As demonstrated in the tables in the Declaration, these samples have inferior properties as compared to the present invention.

As such, Applicants submit that the present invention has unexpected superior results over the cited art. Thus, even if a prima facie case of obviousness has been established, Applicants have sufficiently shown secondary indicia of nonobviousness by demonstrating through argument and declaration that the present invention yields unexpected superior results over the cited art. Therefore, Applicants respectfully request that the rejection be withdrawn and that the claims be allowed as all the rejections in the Office Action have been overcome.

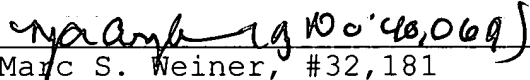
Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Kecia Reynolds (Reg. No. 47,021) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Attached hereto is a marked-up version of the changes made to the application by this Amendment.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By 
Marc S. Weiner, #32,181

P.O. Box 747
Falls Church, VA 22040-0747
(703) 205-8000

MSW/KJR/jeb
2870-0179P

Attachment: Version with Markings to Show Changes Made
Declaration under 37 CFR 1.132

(Rev. 02/20/02)

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

1. (Amended) A photothermographic material [containing] comprising a photosensitive silver halide, a non-photosensitive silver salt of an organic acid, a reducing agent for silver ions and a binder on one surface of a support, wherein the material [contains] comprises at least one compound satisfying (iv) and at least one of (i) to (iii) [(iv)] below and an organic gold compound, and the photosensitive silver halide has a mean grain size of 0.12 μm or less:

(i) a compound producing imagewise a chemical species that can form development initiation points on and in the vicinity of the non-photosensitive silver salt of an organic acid (except for hydrazine derivatives);

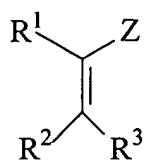
(ii) a compound that provides increase of developed silver grain density to a level of 200-5000% when it is added in an amount of 0.01 mol/mol of silver (except for hydrazine derivatives);

(iii) a compound that provides increase of covering power to a level of 120-1000% when it is added in an amount of 0.01 mol/mol of silver (except for hydrazine derivatives);

(iv) a compound represented by any one of the following formulas

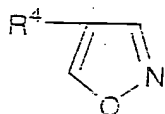
(1) to (3):

Formula (1)



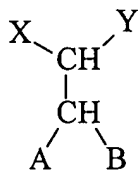
wherein[, in the formula], R^1 , R^2 and R^3 each independently represents a hydrogen atom or a substituent, Z represents an electron-withdrawing group, and R^1 and Z , R^2 and R^3 , R^1 and R^2 , or R^3 and Z may be combined with each other to form a ring structure,

Formula (2)



wherein[, in the formula], R^4 represents a substituent,

Formula (3)



wherein[, in the formula], X and Y each independently represent a hydrogen atom or a substituent, A and B each independently represents an alkoxy group, an alkylthio group, an alkylamino group, an aryloxy group, an arylthio group, an anilino group, a heterocyclyloxy group, a heterocyclylthio group or a heterocyclylamino group, and X and Y or A and B may be combined with each other to form a ring structure.